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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,278	02/24/2004	Mitsunao Sekiwa	06854.0038	2108

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EXAMINER
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VATHYAM, SUREKHA

ART UNIT	PAPER NUMBER
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1753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/11/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/784,278	Applicant(s) SEKIWA ET AL.	
	Examiner Surekha Vathyam	Art Unit 1753	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>2/24/04, 8/26/04, 09/09/04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Drawings***

2. Figure 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (page 1, lines 18 – 19). See MPEP § 608.02(g).  
Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures.
3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "104" has been used to designate both "transparent quartz glass" (page 2, line 1) and "lateral side" (page 2, line 3). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

4. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The disclosure is objected to because of the following informalities:  
Page 13, lines 10 – 11, the abbreviation “ND filter” is used for the first time without any explanation.  
Page 16, line 6, the abbreviation “ITO film” is used for the first time without any explanation.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claims 1 – 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
8. Claims 1 and 10 each recite the limitation “the other electrode” in line 3 – 4 of claim 1 and line 3 of claim 10. There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 1753

9. Claims 2 and 11 each recite the limitation "the electric field" in lines 3 – 4 of each respective claim. There is insufficient antecedent basis for this limitation in the claim.

10. Claim 5 recites the limitation " the rectangular parallelepiped or cylindrical casing-shape body " in lines 3 – 4. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1 – 2 and 4 – 6 are rejected under 35 U.S.C. 102(b) as being anticipated by DeRemigis (US 4,097,153).

Regarding claim 1, DeRemigis ('153) discloses an electrophoretic mobility measuring apparatus (see fig. 2 and column 1, lines 7 – 11) comprising: a cell (22) capable of confining a sample (column 2, line 65 – column 3, line 3); a transparent electrode (26) forming a part of a cell wall (column 3, lines 46 – 50); another electrode (24) opposite to the transparent electrode; voltage applying means (32) for applying a voltage across both electrodes (column 3, lines 1 – 8); a light incident unit (42, 46) for entering light (48) into the cell through the transparent electrode (see fig. 2); a light receiving unit (52) for receiving, through the transparent electrode, outgoing light (50) which scatters from the sample in the cell at a predetermined angle  $\theta$  with respect to the

Art Unit: 1753

incident angle (see fig. 1); and a measuring unit (56, 58) for measuring the Doppler displacement of particles in the sample based on the difference in frequency between the incident light and the outgoing light (column 1, lines 27 – 45, column 2, lines 1 – 4 and column 2, lines 51 – 64), the direction of scattering vector which is the vector difference between incident and outgoing vectors, being substantially identical with that of the normal line of the transparent electrode face (see figs. 1 and 2; column 2, lines 51 – 64 and column 3, lines 37 – 44).

Regarding claim 2, DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus wherein the direction of the scattering vector is substantially identical with that of an electric field (see figs. 1 and 2; column 2, lines 51 – 64 and column 3, lines 37 – 44).

Regarding claim 4, DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus wherein the cell inside is a casing-shape body provided at both end faces thereof with the electrodes, one of which is the transparent electrode (see fig. 2).

Regarding claim 5, DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus wherein the scattering light measuring point is located between the center line of a rectangular parallelepiped or cylindrical casing-shape body, and the inner wall of a lateral side thereof (see fig. 2).

Regarding claim 6, DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus wherein the transparent electrode is formed on a transparent substrate (column 3, lines 46 – 50), the light incident unit is arranged to enter light

Art Unit: 1753

through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through the other lateral side of the transparent substrate (see fig. 2).

***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

Art Unit: 1753

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

16. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeRemigis (US 4,097,153) in view of Saxe (US 5,325,220).

DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus as discussed with regards to claim 1 above. Regarding claim 3, DeRemigis ('153) does not explicitly disclose the transparent electrode is coated with platinum or platinum alloy.

Saxe ('220) teaches a cell comprising at least one transparent electrode coated with platinum (column 4, lines 8 – 13).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of DeRemigis ('153) to have a platinum coating for the transparent electrode as taught by Saxe ('220) because a platinum coating is electrically conductive and is well known in the art for its use as an electrode material.

17. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeRemigis (US 4,097,153) in view of Goldfarb (US 5,575,936).

DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus as discussed with regards to claim 1 above. Regarding claim 7, DeRemigis ('153) does not explicitly disclose a cell driving means.

Goldfarb ('936) teaches an apparatus comprising a cell driving means (16) for moving a cell (15) in the x, y and z directions with respect to a light incident unit (11) (see figs. 4 and 5 and column 4, line 16 – column 5, line 8).



Art Unit: 1753

It would have been obvious to one of ordinary skill in the art to modify the apparatus of DeRemigis ('153) to include a cell driving means as taught by Goldfarb ('936) because such XYZ tables are well known in the art as pointed out by Goldfarb ('936) (column 4, lines 21 – 24) and help align the focal point (14) of laser beam (12) at any desired angle with respect to the cell (15) (column 2, lines 30 – 40).

18. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRemigis (US 4,097,153) in view of Zeineh (US 4,025,200).

DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus as discussed with regards to claim 1 above. Regarding claims 8 and 9, DeRemigis ('153) does not explicitly disclose a cylindrical lens in the light incident unit (claim 8) or in the light receiving unit (claim 9).

Zeineh ('200) teaches a light system that uses a cylindrical lens (17) (see fig. 1 and column 3, line 44 – column 4, line 18).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of DeRemigis ('153) to include a cylindrical lens in the light incident or light receiving unit as taught by Zeineh ('200) because the cylindrical lens has the ability to change the width of a light beam as explained by Zeineh ('200) (see figs. 1 and 2 and column 2, lines 22 – 33).

19. Claims 10 – 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRemigis (US 4,097,153) in view of Yano et al. (US 4,123,841).

Regarding claim 10, DeRemigis ('153) discloses an electrophoretic mobility measuring apparatus (see fig. 2 and column 1, lines 7 – 11) comprising: a cell (22) capable of confining a sample (column 2, line 65 – column 3, line 3); a first electrode (26) forming a part of a cell wall (column 3, lines 46 – 50); another electrode (24) opposite to the first electrode; voltage applying means (32) for applying a voltage across both electrodes (column 3, lines 1 – 8); a light incident unit (42, 46) for entering light (48) into the cell through the first electrode (see fig. 2); a light receiving unit (52) for receiving the outgoing light (50) which scatters from the sample in the cell at a predetermined angle  $\theta$  with respect to the incident angle (see fig. 1); and a measuring unit (56, 58) for measuring the Doppler displacement of particles in the sample based on the difference in frequency between the incident light and the outgoing light (column 1, lines 27 – 45, column 2, lines 1 – 4 and column 2, lines 51 – 64), the direction of scattering vector which is the vector difference between incident and outgoing vectors, being substantially identical with that of the normal line of the first electrode face (see figs. 1 and 2; column 2, lines 51 – 64 and column 3, lines 37 – 44).

DeRemigis ('153) does not explicitly disclose the first electrode (26) to be an opaque electrode with transparent windows for light to be incident or to be outgoing.

Yano ('841) teaches a cell comprising two electrodes with at least one electrode being opaque and having transparent window portions (see column 3, lines 42 – 47).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of DeRemigis ('153) to have the first electrode be opaque with transparent

window portions as taught by Yano ('841) because as Yano ('841) explains it enables the use of the cell as a display (column 3, lines 42 – 47).

Regarding claim 11, DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus wherein the direction of the scattering vector is substantially identical with that of an electric field (see figs. 1 and 2; column 2, lines 51 – 64 and column 3, lines 37 – 44).

Regarding claim 12, Yano ('841) teaches a cell-side face of the opaque electrode is coated with platinum or platinum alloy (column 3, lines 64 – 67).

Regarding claim 13, DeRemigis ('153) discloses the electrophoretic mobility measuring apparatus wherein the first electrode (26) is formed on a transparent substrate (column 3, lines 46 – 50), the light incident unit is arranged to enter light through one lateral side of the transparent substrate, and the light receiving unit is arranged to receive the light which outgoes through the other lateral side of the transparent substrate (see fig. 2). Yano ('841) teaches an opaque electrode (column 3, lines 42 – 47) formed on a transparent substrate (column 3, lines 61 – 63).

20. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeRemigis (US 4,097,153) in view of Yano et al. (US 4,123,841) as applied to claim 10 above, and further in view of Goldfarb (US 5,575,936).

Regarding claim 14, DeRemigis ('153) in view of Yano ('841) does not explicitly disclose a cell driving means.

Art Unit: 1753

Goldfarb ('936) teaches an apparatus comprising a cell driving means (16) for moving a cell (15) in the x, y and z directions with respect to a light incident unit (11) (see figs. 4 and 5 and column 4, line 16 – column 5, line 8).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of DeRemigis ('153) in view of Yano ('841) to include a cell driving means as taught by Goldfarb ('936) because such XYZ tables are well known in the art as pointed out by Goldfarb ('936) (column 4, lines 21 – 24) and help align the focal point (14) of laser beam (12) at any desired angle with respect to the cell (15) (column 2, lines 30 – 40).

21. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRemigis (US 4,097,153) in view of Yano et al. (US 4,123,841) as applied to claim 10 above, and further in view of Zeineh (US 4,025,200).

Regarding claims 15 and 16, DeRemigis ('153) in view of Yano ('841) does not explicitly disclose a cylindrical lens in the light incident unit (claim 15) or in the light receiving unit (claim 16).

Zeineh ('200) teaches a light system that uses a cylindrical lens (17) (see fig. 1 and column 3, line 44 – column 4, line 18).

It would have been obvious to one of ordinary skill in the art to modify the apparatus of DeRemigis ('153) in view of Yano ('841) to include a cylindrical lens in the light incident or light receiving unit as taught by Zeineh ('200) because the cylindrical

Art Unit: 1753

lens has the ability to change the width of a light beam as explained by Zeineh ('200) (see figs. 1 and 2 and column 2, lines 22 – 33).

### ***Conclusion***

22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bean (US 3,708,402), Pike (US 3,866,055) and Mc. Neil-Watson et al. (US 2002/0040851) each disclose particle mobility measuring systems using laser Doppler velocimetry.

Fujiyama et al. (US 5,069,769) discloses the use of a cylindrical lens in an electrophoretic system with laser optics.

Rose (US 5,587,532) discloses an x-y platform to move a cell with respect to a laser source.

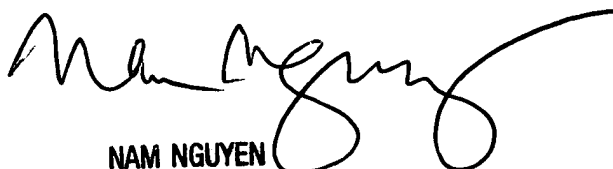
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Surekha Vathyam whose telephone number is 571-272-2682. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SV  
April 5, 2007



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